

# Sonoran Steel Fabrication L.L.C.

## Lift Kit Install Guide



**1996-2002 Toyota 4Runner**

**System 1.2 and System 7.2**

**Feb 2017**

## **Front Coil Overs/Front Lift:**

### **System 1.2 & 7.2 with TRD/Bilstein**

- (1)-Toyota Progressive TRD Front Coil: Driver/Left Side
- (1)-Toyota Progressive TRD Front Coil: Passenger/Right Side
- Note: TRD Coils have a 3 5/8" ID and a Progressive Spring rate
- (2)-Toyota M12 Flange Stover Nuts
- (2)-Toyota Upper Front Shock Top Bushings
- (2)-Toyota Upper Front Shock Lower Bushings
- (2)-Toyota Upper Front Shock Top Bushing Retainer
- (2)-Toyota Upper Front Shock Lower Bushing Retainer
- (2)-Sonoran Steel Fabrication L.L.C. Custom Polyurethane Top Plate Retainers
- (2)-Bilstein 5100 Series Height Adjustable Zinc Plated Heavy Duty Front Shocks
- (2)-Sonoran Steel Fabrication L.L.C. Front Differential Drop Spacers
- (4)-Toyota Front Upper Sway Bar Link Bushings
- (2)-Toyota Front Upper Sway Bar Link M10 Stover Nuts

### **System 1.2 with Radflo 2.0 or 2.5**

- (2) Radflo Coil Overs in 2.0 or 2.5 size, coils in 600, 650 or 700. Amount of force in pounds to compress coil 1". Assembled ready to install. Final height adjustment by customer.
- (1) 2.0 or 2.5 Spanner Wrench
- (2)-Sonoran Steel Fabrication L.L.C. Front Differential Drop Spacers
- (4)-Toyota Front Upper Sway Bar Link Bushings
- (2)-Toyota Front Upper Sway Bar Link M10 Stover Nuts

Note: 2.0 Size use a 2.5" ID Coil and 2.5 Size use a 3.0" ID Coil

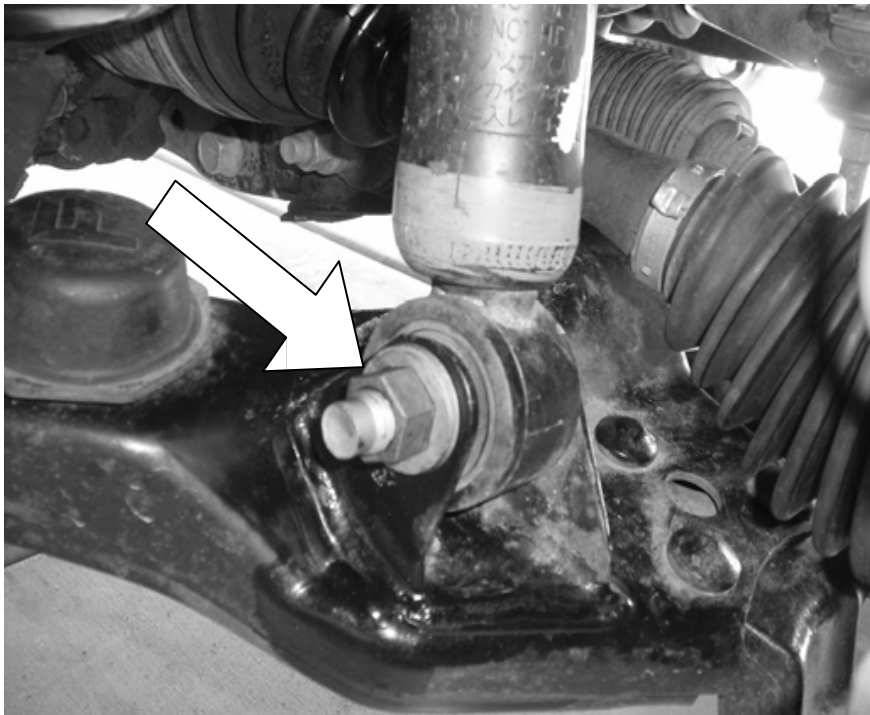
\*This lift kit should only be installed by a professional mechanic or someone possessing the skills and tools to do so safely and correctly. The front coil/shock assemblies can be dangerous if not done by an experienced installer. Parts can also be destroyed if not assembled correctly.



1. Park your 4Runner on a level concrete surface
2. Center and lock your steering wheel and set your parking brake
3. Block your rear wheels to prevent your 4Runner from moving either forwards or backwards
4. Jack the front of your 4Runner up and support it with jack stands under the frame as specified in your factory owner's manual
5. Remove the front wheels by undoing the 6 lug nuts on each side using a 21mm deep socket and a breaker bar (or your factory-supplied tools as specified in your owner's manual)

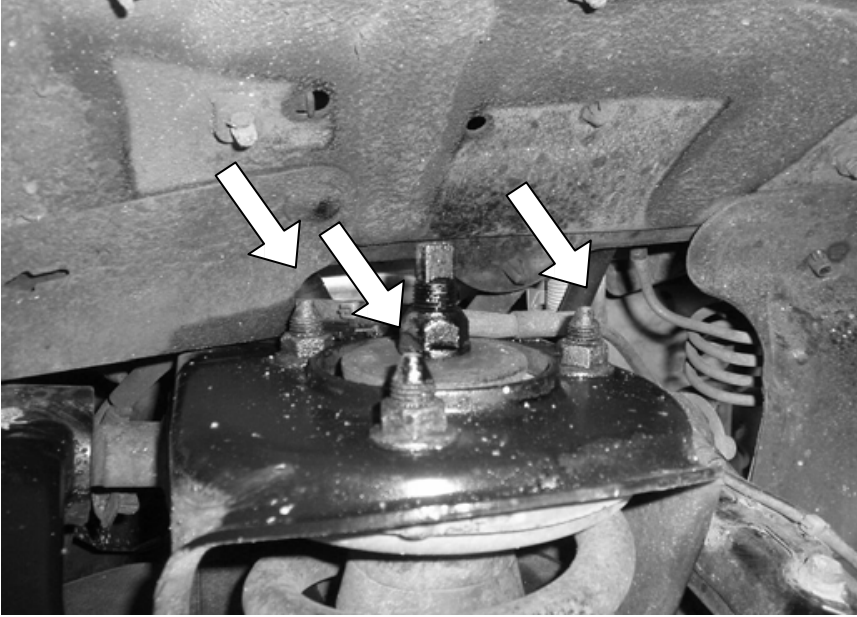


6. Remove the 14mm nut and the rubber bushing and metal cap from the anti-sway bar (see picture above)

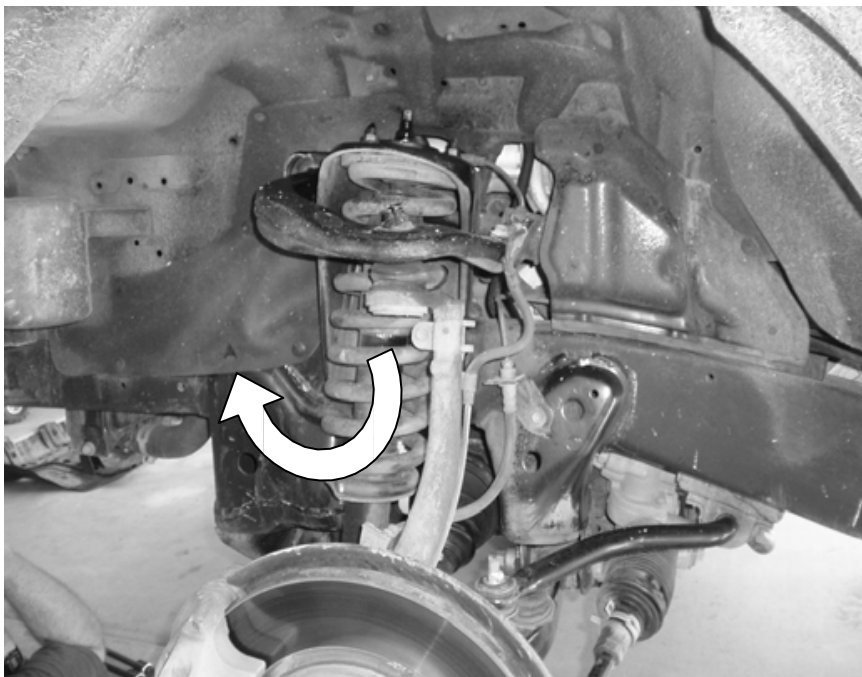


7. Remove the 19mm nut from the bolt securing the bottom of the front shock (see picture above) and back the bolt out towards the rear of the 4Runner –be careful not to strip the threads when pounding the bolt out with a hammer and center punch





8. Remove the three 14mm nuts from the top of the strut assembly. The inner-most nut will require a 14mm box wrench in order to access it and loosen it



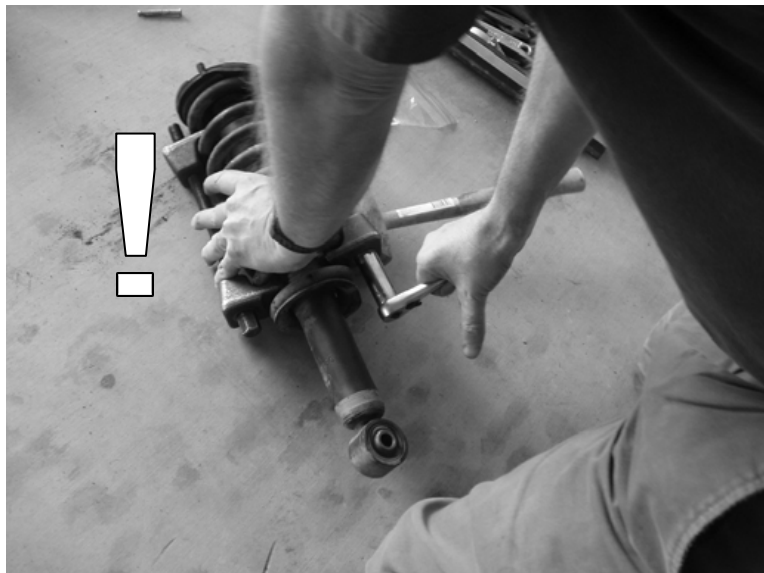
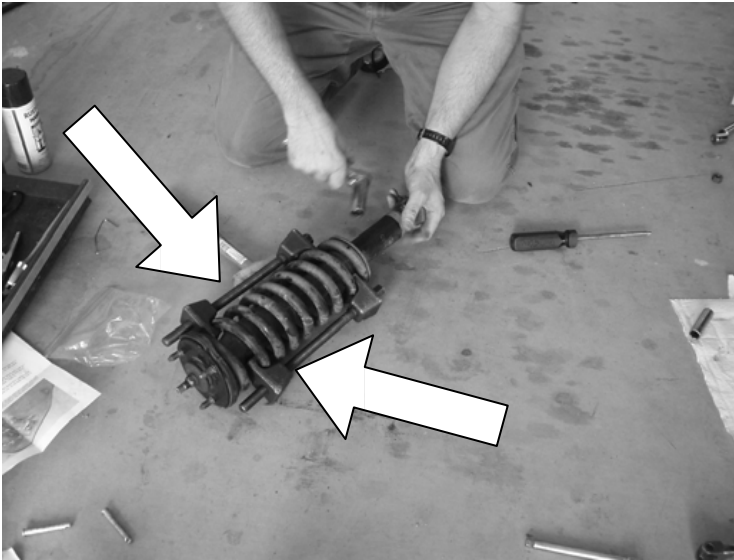
9. With three 14mm top nuts removed and the lower shock eye bolt pulled, remove the front coil / shock assembly from the vehicle...



Picture above shows remaining shock mount components with coil/ shock assembly removed. At this point loosen the nut on the very long bolt (12" long or so) holding the bushings of the upper control arm to the frame. Once you loosen it, the entire assembly will drop straight down.

**ATTENTION:** At this time, it is highly advised that you take your front spring / shock assemblies to a qualified automotive shop who can professionally disassemble the pieces in a safe and controlled manner. If you choose to proceed on your own, the next best option is to utilize a spring compressor tool such as the kind you can rent from Autozone or similar. Please be advised that you place yourself and anyone assisting you in potentially great danger should the compressor tools fail or otherwise disengage themselves from the spring / shock assembly. The steps that follow provide direction on how to use the rental tool, but are not a substitute for common sense. Sonoran Steel assumes no liability for injuries, death, or damage incurred as a result of attempting the remaining installation steps on your own.

10. Hook the spring compressor tools on opposing sides of the spring and lay the entire unit down on the concrete. It is suggested that 2X4s or equivalent size blocks of wood be laid parallel underneath the spring compressor pieces to sort of wedge it in place and help provide support so that the entire assembly does not rotate on you as you ratchet the compressor bolts tight. It is further suggested that you drape a thick blanket or seat cushion over the entire assembly and have someone wearing work boots or similar footwear stand on the covered assembly to further prevent the units from rotating when the other person is ratcheting. This will help lessen the blow should the compressor tools fail and the spring unload. Point the units away from any other people, pets, vehicles, etc.



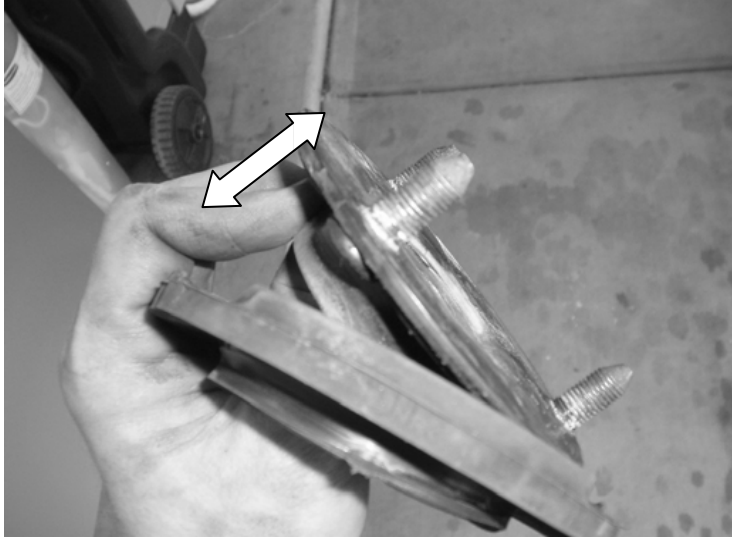
Doing it this way is long, tedious, and exhausting –not to mention *dangerous*. Wear gloves and get a friend to help you. By taking a few extra steps as outlined in step 10, you can ensure a safe and efficient process of undoing your 4Runner front spring / shock assembly...



11. With the spring compressed enough to relieve tension on the top plate assembly, use a 17mm ratcheting box wrench on the top nut and secure the shaft of the front 4Runner shock using an adjustable open-end wrench. Using the tools against one another, undo the top nut carefully - staying out of the path of the spring's travel. It should come apart easily and appear similar to the picture above. You'll then have the shock and spring freed up, along with the lower washer / cushion, rubber coil spring isolator, mounting plate (with 3 studs), upper cushion / washer, and the shaft nut.



12. Separate the rubber coil spring isolator from the underside of the spring / shock mounting plate (as shown above)



Replace the stock coil spring isolator with the custom mold from Daystar re-sizing the spring size from 3" ID to 3 5/8" ID.



15. Undo the spring compressor devices on your OEM 4Runner coils. Set your coils aside and move the spring compressors to your replacement coil (Tundra 4WD Progressive coils) and begin to compress the spring for install.

FYI, we use a wall mounted compressor. It makes the job extremely easy. Most auto repair shops have these and they should not charge you much. Just make sure they understand the orientation when assembling.

Wait until the truck is on the ground with the front tire back on before tightening to full torque the lower bolt on the front shock and the long bolt connecting the upper a-arms busings to the frame. By doing this you are torquing them at the new ride height and they will not be bound just going down the road.

## NOTICE:

The install guide supplement was written using the 1999 4WD 4Runner height/measurements as a benchmark.

Here is a chart to cross reference the actual height on your vehicle.

1996 = 3"  
1997 = 2.5"  
1998 = 2.5"  
1999 = 2"  
2000 = 3"  
2001 = 3"  
2002 = 3"

1995.5 to 2000 Tacoma = 3"  
2001-2004 Tacoma = 2"

So if you have a 2001 4Runner and want 3" of front lift which is a common height for that truck, you would use the 2" mark on the install guide, because 2" on a 1999 and 3" on a 2001 is the same height in the end.



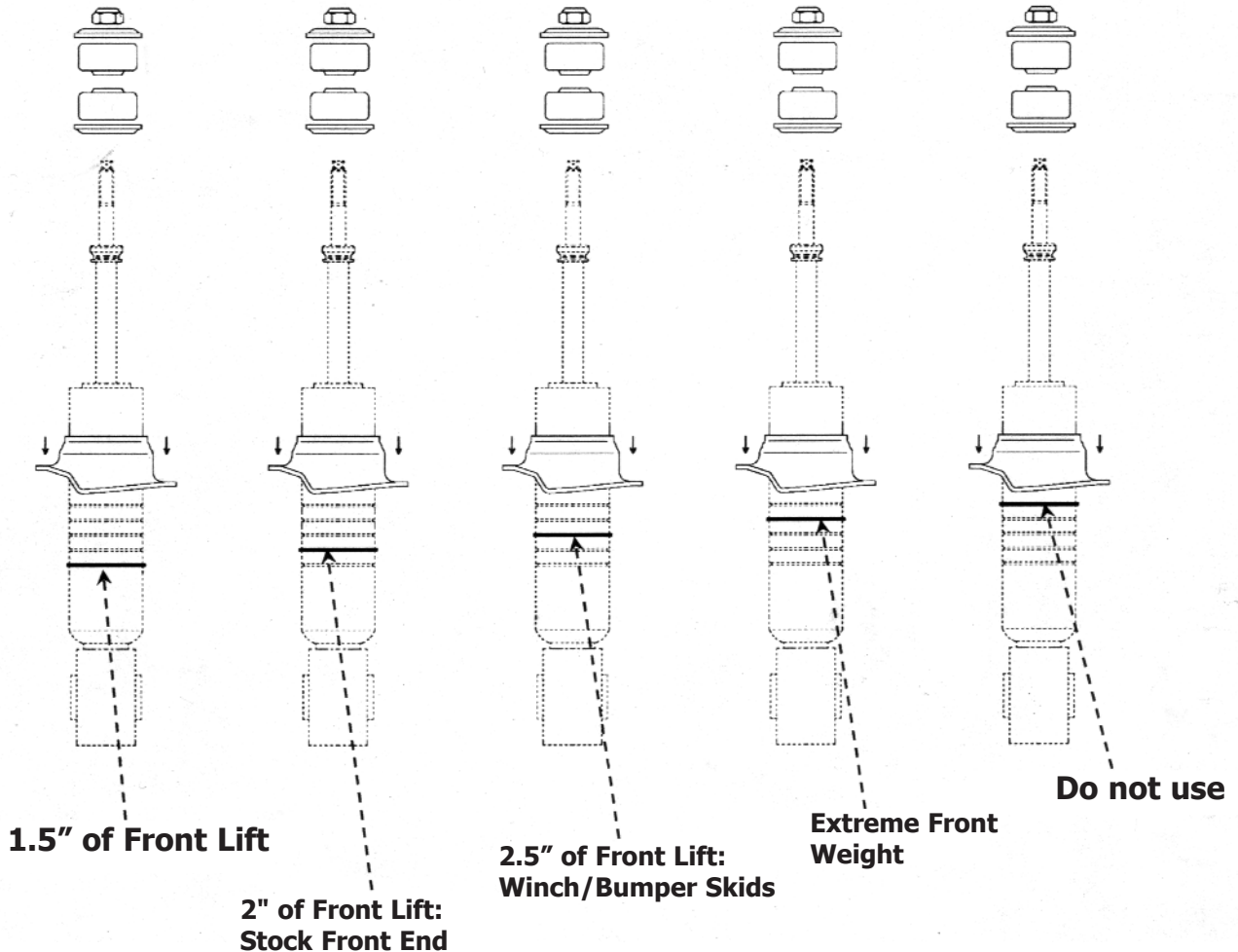




# Sonoran Steel Fabrication L.L.C. Tempe, Arizona

## System 1.2 and 7.2 TRD/Bilstein Assembly - Orientation

### Lower Cup Settings for Bilstein 5100 Front Shock



### With the lift kits the following is supplied:

- 2: Stock Upper Stover Nuts
- 2: Stock Toyota Upper and Lower Bushings
- 2: Factory Upper Cups and 2 Factory Lower Cups

### What you will need to Re-Use from your vehicle or buy brand new from Toyota

- 2: Support Sub-Assembly: Part Number: 48609-35030

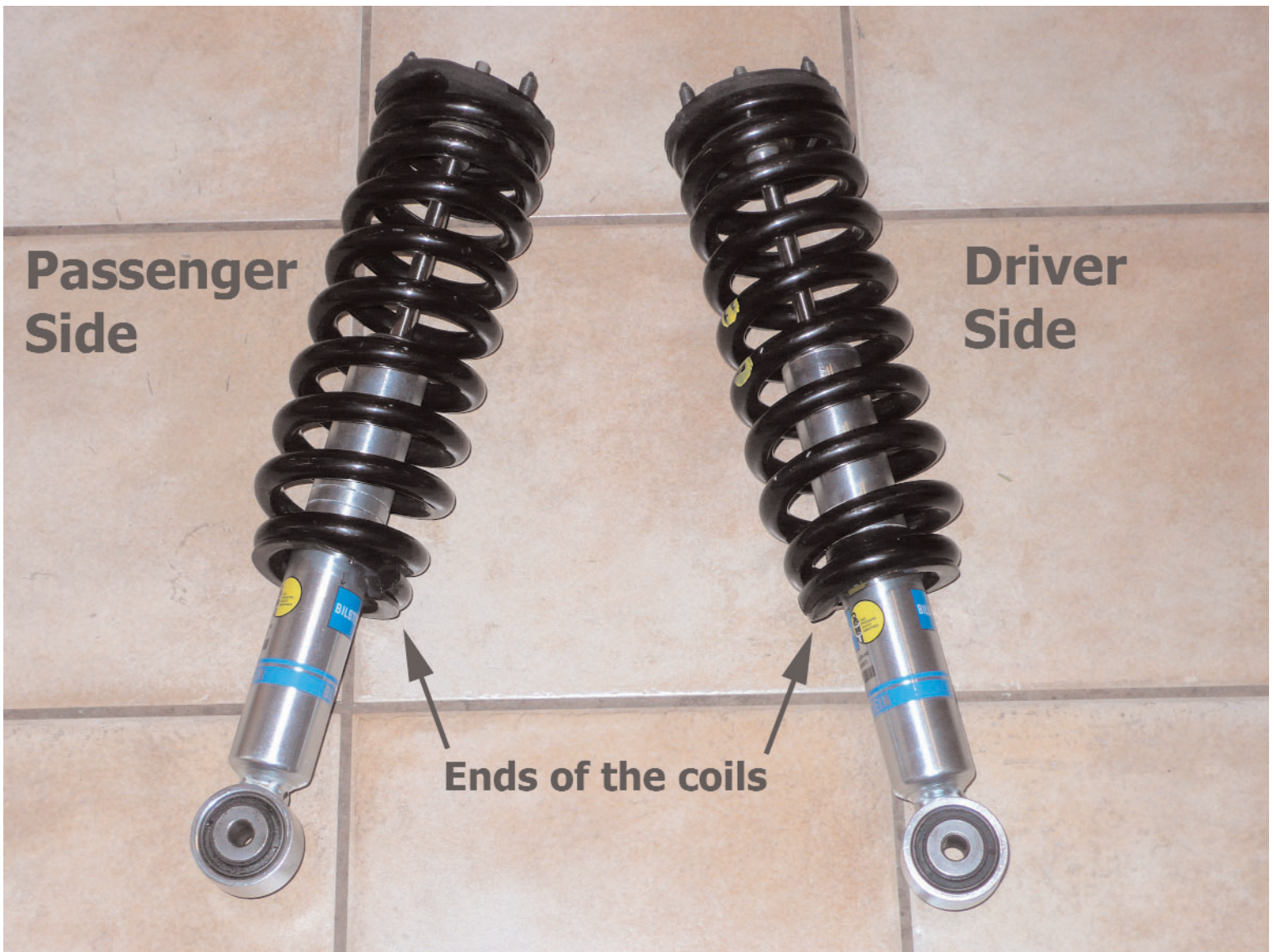
(You have two of these on your vehicle, you only have to replace these if they are rusted or corroded)

## Orientation of front coils and shocks:

When assembling the front shock/coil assembly it is very important to line everything up correctly. The obvious thing you have to line up is the top plate with the lower shock bolt hole, but what most people do not realize is that the assemble works best when the ends of the coils them selves are in a certain position.

The coils work best when the very end on the bottom of the coil, where it ends, is placed on the inside toward the frame. This creates a natural arc outward in the coils and it does work much better.

If you notice that the coil is rubbing on the frame of your vehicle or you get a strange grinding noise, your shock/coil is installed 180 degrees off.

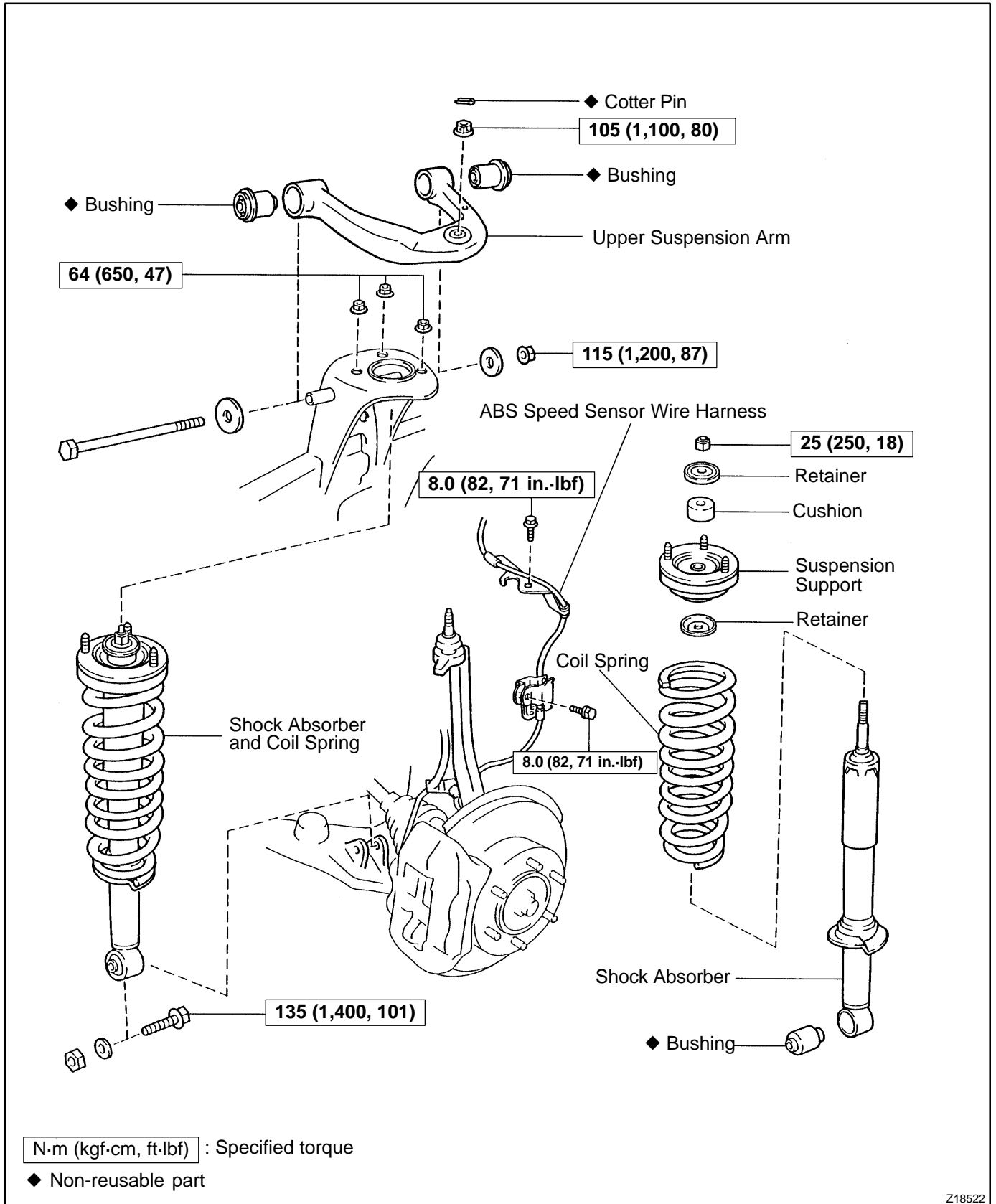


These coils are assembled in the manner described above.



# FRONT SHOCK ABSORBER COMPONENTS

SA05G-01

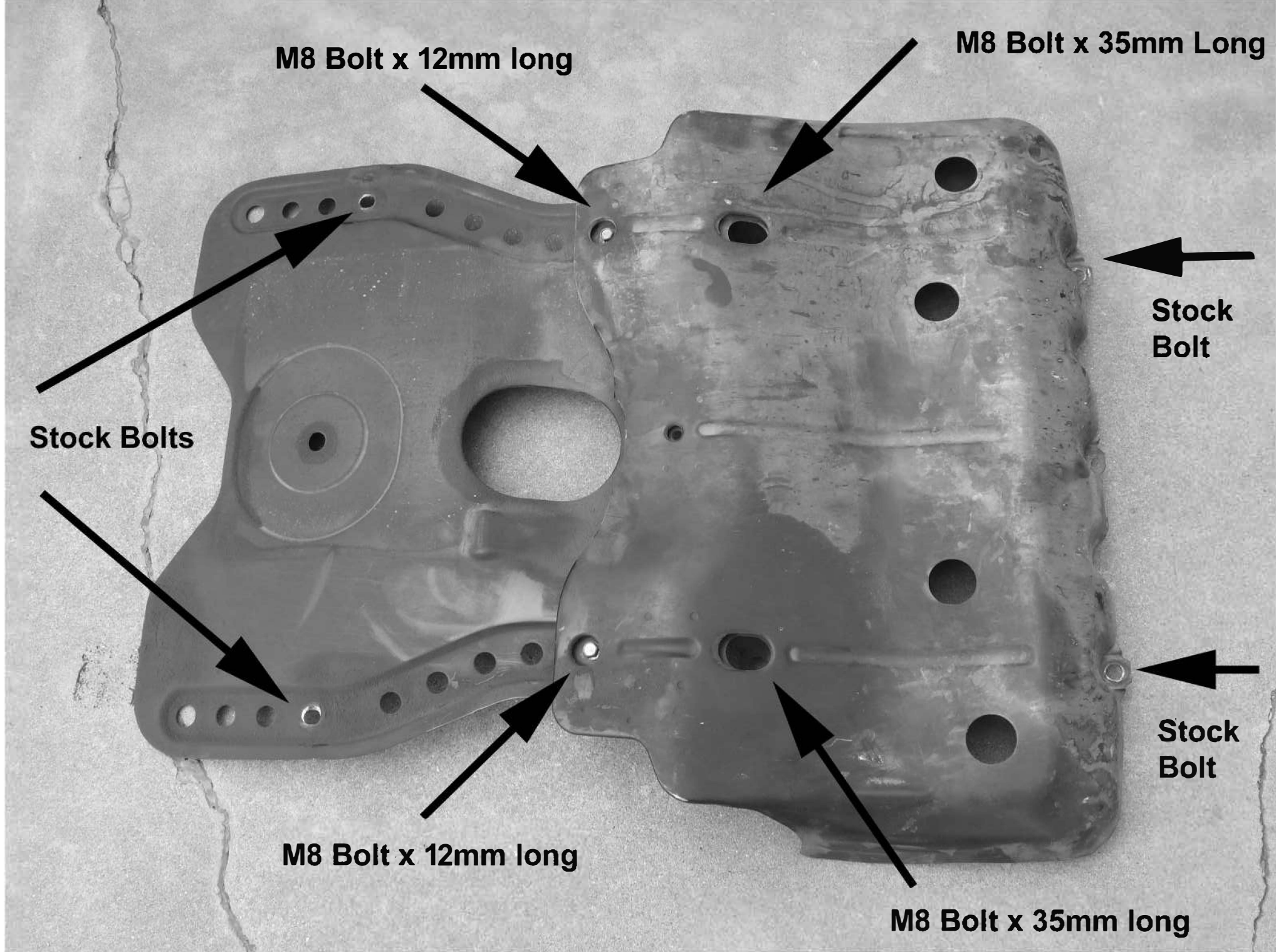


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## Front Differential Drop Spacer Install:

1. Follow the pictures on my website; all you have to do is unbolt the stock M14 bolts that hold the 2 front mounts of the front diff. It will just hang there, no need for jacks, stands, etc. You don't even need to take the tires off, just the front skid plate.
2. On the tapered spacers there are 2 markings. A dot that faces the front of the vehicle and a dot on the top. Make sure the dot on the side faces exactly forward and the side with the dot on the end is placed upward. Which should put the dots right below the frame cross member. That's it.
3. One M12 washer goes right next to the bolt head at the bottom and the second M12 washer at the very top next to the nut, above the frame. The nut I supplied is a Stover nut. An all-metal lock nut, it will not come loose. Torque to 100 ft. lbs.
4. If you have a stock Toyota front skid plate use a very thin cut off style wheel for a grinder and notch out the skid as shown in the picture below, you will not need to elongate any holes, replace any hardware or have the skid hang down further than stock. Once the section is cut out, take a hammer and pound flat about 1" long of the ridge that was under the cut out section. See the photo below.





M8 Bolt x 12mm long

M8 Bolt x 35mm Long

Stock Bolts

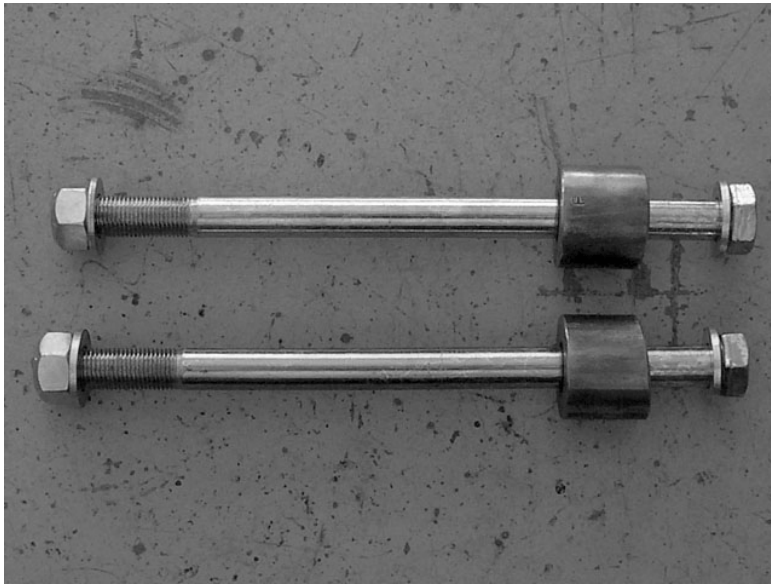
Stock Bolt

M8 Bolt x 12mm long

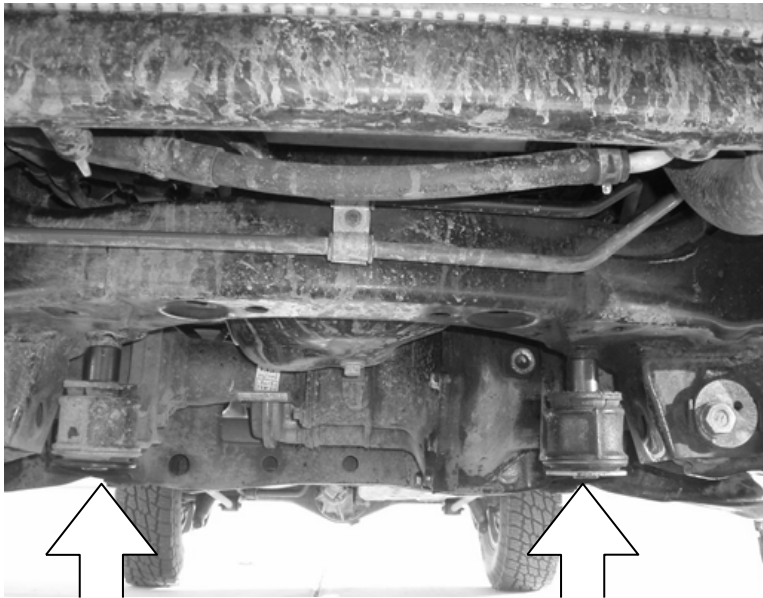
M8 Bolt x 35mm long

Stock Bolt

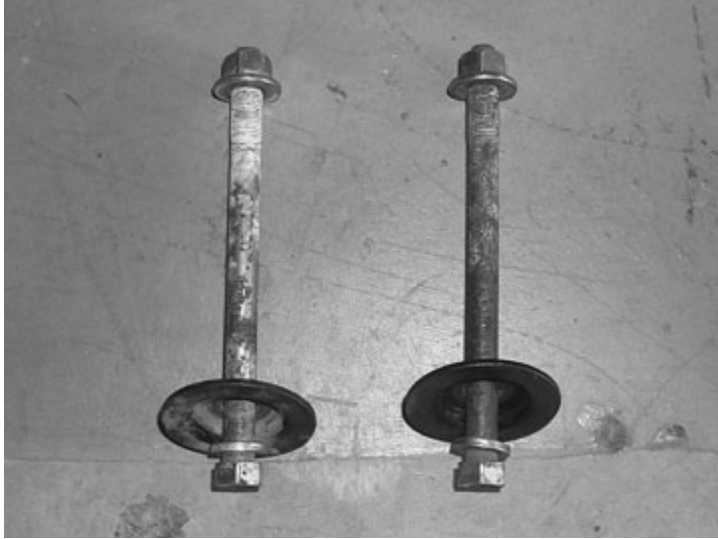
## Diff Drop Kit Install:



Pictured above is the complete Sonoran Steel Tapered 1" Differential Drop Kit.



With the factory skid plates removed, locate the factory differential supporting bolts (indicated with arrows in the picture above) and remove them using a 19mm socket and a breaker bar. It is suggested you wedge a 19mm box wrench, or similar, up top to torque against -so that the entire bolt doesn't spin on you. The factory M14 bolts and corresponding hardware are shown in the picture at left. You will reuse the black factory washers in the install.



Factory 14mm bolts, nuts and lower washers. The lower washers will be re-used on the 1/2"-20 x 8" Grade 8 bolts with Stover lock nuts.



Install the Sonoran Steel Tapered 1" Differential Drop Hardware and reuse the black factory washers at the bottom of the assembly. Make sure the tapered spacer is facing forward (circular indentation on spacer is upward facing the engine and facing forward and is centered side-to-side). The picture at left shows a close-up of the driver's side front differential drop hardware installed. The Sonoran Steel Tapered 1" Diff Drop Spacer is circled. The placement of the black factory washer that you reuse goes in the same place that you found them on the factory hardware setup. Torque to 100 lb-ft per factory specs.

If you do not want to modify the factory Toyota front skid or need something more substantial. BudBuilt, Savage Off Road, Front Range Off Road and others make front skid plates from 3/16" plate steel that will work unmodified with a diff drop kit. My advice is to get only the front skid and a gas tank skid. I have personally never had a need for a center skid. The front and the gas tank are the main rock hit points.



18375 Bandilier Circle, Fountain Valley, CA, 92708 Tel: 714 965-7828 Fax: 714 965-7829

### **Installation Instructions**

**Part No. 5CT 004 00, 5CT 004 0R, 6CT 004 00, 6CT 004 0R, 6CT 004 1R**

2.0" & 2.5" Diameter Toyota Coil-Over Kit

1995 – 2002 Toyota 4Runner, 1996 – 2002 Toyota Prado 90

Enclosed Parts List:

- (2) Coil Over Shock Assemblies
- (6) 3/8" Washers
- (6) 3/8"- 16 Lock Nuts
- (4) Lower Bearing Spacers (Attached to lower rod end)

**Radflo Suspension Technology recommends that all products are installed by trained professionals.**

**\*\*\*Please read instructions thoroughly before proceeding with installation\*\*\***

Radflo shocks come pre-charged with the correct amount of nitrogen. Please do not release pressure.

For models with KDSS please see our KDSS calibration instructions.

#### INSTALLATION INSTRUCTIONS:

1. Please ensure that the vehicle is turned off and in park and the wheels are chocked.
2. Measure from the center of the hub to the bottom of the fender opening and record this for future reference.
3. Jack up the vehicle and place on jack stands. Remove front wheels.
4. Disconnect the sway bar links on both sides and rotate the sway bar out of the way.
5. Remove the 3 nuts on the stock upper coil-over mount. **Do not loosen the center nut as this secures the coil spring to the shock.**
6. Remove the lower shock bolt from the lower control arm. Retain this bolt for re-use.
7. Remove the stock coil-over. You may have to use a pry bar to pry the control arms apart in order to remove the shock.
8. Install new coil-over upper mount utilizing supplied hardware.
9. Install the lower shock mount to the lower control arm utilizing the stock bolt.
10. Re connect the sway bar links.
11. Install the wheels and lower the vehicle to the ground. Drive the vehicle backward and forward to settle the suspension. The install is now complete.
12. Measure from the center of the hub to the bottom of the fender opening. Compare measurements to step #2.
13. To adjust the coil-overs both front wheels need to be drooped completely. There is no need to remove the wheels. Use a C-Spanner wrench (not supplied) to loosen the top lock collar of the adjustment ring. Using the wrench rotate the adjustment collar down for additional lift or up for less lift. The lift will be approximately double the distance the



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collar is moved. Once the desired lift is reached tighten the lock collar on the adjustment collar again. Tip:- Using some lubrication on the thread and collar will make it easier to adjust.

For technical support please contact Radflo Suspension Technology directly at (714) 965-7828 Monday - Friday 8:00 am - 5:00 pm Pacific time. Thank you for your purchase of Radflo Suspension Technology products.

**Please retain all stock components if you ever have the need to remove your Radflo suspension products.**



## Radflo Advise from Sonoran Steel:

The **2.0 Radflo** front coil over with 2.5" ID coils in 600,650 and 700 is best used on a truck with a stock front bumper.

It can be adjusted bolted in to the vehicle with a 2.0 spanner wrench.

The **2.5 Radflo** front coil over without reservoir may or may not be able to be adjusted in the vehicle depending on what spring you choose. The coil over bucket in a 3<sup>rd</sup> Gen 4Runner was not designed for a larger shock body such as the 2.5 size. This unit comes with 3.0" ID coils in 600, 650 and 700 and is best used for a 4Runner with a custom front bumper, winch and aftermarket skids.

The **Radflo 2.5** front coil over with the **external reservoir** will have to be removed for adjusting as the fittings for the hose will block the use of the spanner wrench. This is not as bad as it seems because you can use the formula below to determine your adjustment and perform it once, re-install and be done.

My suggestion is to run a 600/2.5" ID coil with the 2.0 coil over and a for a 2.5 coil over, 600/3.0" ID (stock bumper or light added weight) and 650/3.0" ID coil (winch/bumper/after-market skid plates). My feeling is the 700/3.0" ID coil is way too stiff.

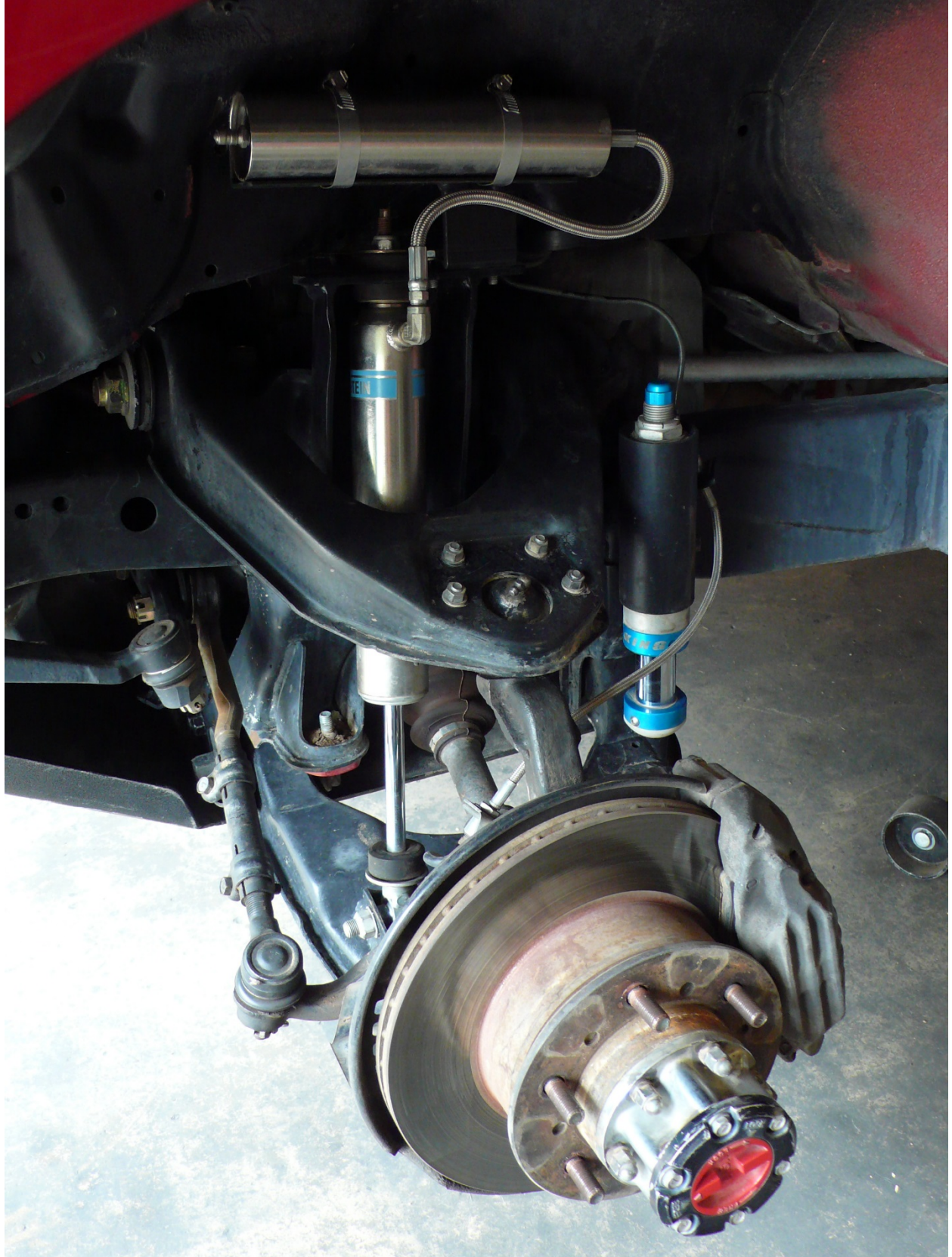
Adjusting the coil overs. This is done with a spanner wrench, one was sent with the coil overs. The easiest way to do it is to pull the units and use a spring compressor. Trying to smooch down a coil with just the threads and the spanner is possible, but you need to have the corner your adjusting up in the air and the weight of the vehicle off the coil over. You will need to put the tire back on and drive around the block to see the results of the change. This process may have to be repeated a several times to get to your desired lift height.

Formula for adjusting.  $\frac{3}{8}$ " of threads equals  $\frac{1}{2}$ " of lift. So let's say you need to raise your front end up 1" higher, screwing the spanner nut down to expose  $\frac{3}{4}$ " more threads will result in 1" of lift. Install the units. Determine what adjustment need to be made mathematically, make the adjustment and you're done. The driver's side will need a few mores threads down to compensate for the extra weight on that side. With the TRD/Bilstein the drive coil is slightly taller than the passenger to compensate for this.

Our suggestion for mounting the front reservoir's is to mount them ABOVE the coil bucket using the universal mounting bracket Radflo supplies and NOT in front of it or behind the coil over as your tires will rub on the reservoirs.

Example photo of our 1990 Red Truck, this is a torsion bar IFS design but the mounting concept is the same. Reservoir above the coil/shock mount.









# Rear Lift Install:

## 1.2 Kit:

- (2)-Toyota 80 Series Land Cruiser Coils
- (2)-Genuine Toyota Tokico Black Rear Shocks & Supporting Hardware (Long Travel)
- (1)-Sonoran Steel Fabrication L.L.C. Adjustable Trac/PanHard Bar
- (2)-Sonoran Steel Fabrication L.L.C. Extended Bump Stop Adapters with
- (2)-Daystar "Competition Style" Bump Stops
- (2)-Sonoran Steel Fabrication L.L.C. Rear Sway Bar Adjustment Brackets
- (1)-Sonoran Steel Fabrication L.L.C. Braided Stainless Steel Extended Brake Line
- (1)-Sonoran Steel Fabrication L.L.C. Brake Line E-Clip
- (1)-Sonoran Steel Fabrication L.L.C. Drive Shaft Zerk Plug
- (1)-Sonoran Steel Fabrication L.L.C. Parking/Emergency Brake Bracket
  
- (Optional) (2)-Bilstein Long Travel 5100 Series Zinc Plated Shocks
  
- (Optional) (2)-Radflo 2.5 "Long Travel" Custom Rear Shocks with External Reservoirs & Mounting Brackets

## 7.2 Kit:

- (2)-ARB/Old Man Emu 890X (New) Rear Coils
- (2)-Bilstein Long Travel 5100 Series Zinc Plated Shocks
- (1)-Sonoran Steel Fabrication L.L.C. Adjustable Trac/PanHard Bar
- (2)-Sonoran Steel Fabrication L.L.C. Extended Bump Stop Adapters with
- (2)-Daystar "Competition Style" Bump Stops
- (1)-Sonoran Steel Fabrication L.L.C. Braided Stainless Steel Extended Brake Line
- (1)-Sonoran Steel Fabrication L.L.C. Parking/Emergency Brake Bracket

# Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 1)



1. Park your 4Runner on a level concrete surface
2. Center and lock your steering wheel and set your parking brake
3. Block your front wheels to prevent your 4Runner from moving either forwards or backwards
4. Jack the back of your 4Runner up and support it with jack stands under the frame as specified in your factory owner's manual

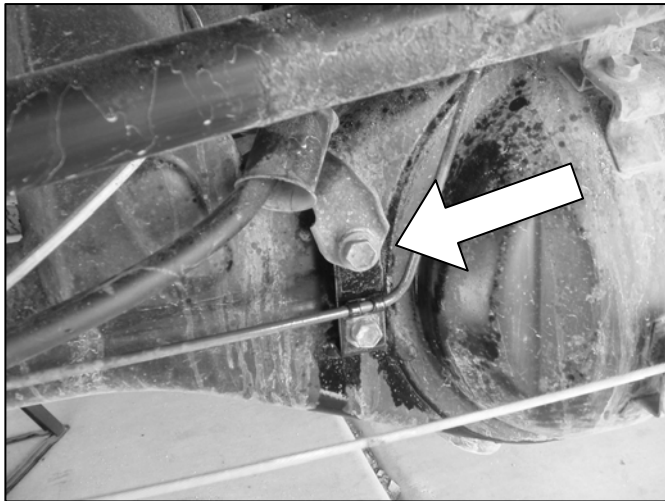


5. Remove the rear wheels by undoing the 6 lug nuts on each side using a 21mm deep socket and a breaker bar (or your factory-supplied tools as specified in your owner's manual)

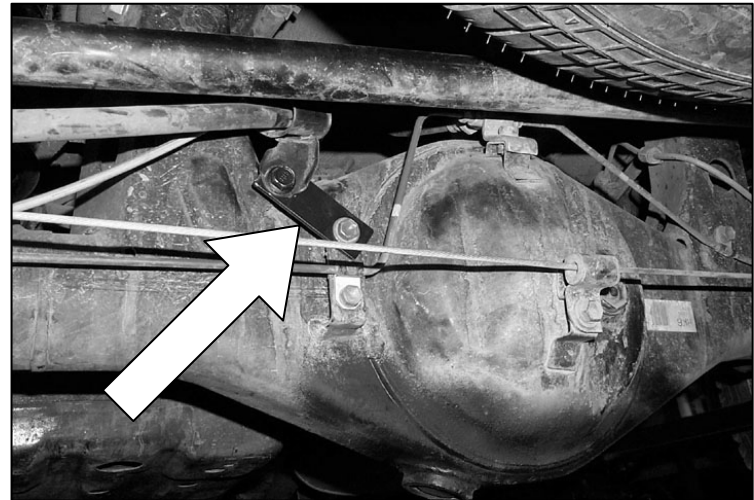


As depicted in the picture at left, you want the rear axle to be able to hang down without any obstruction.

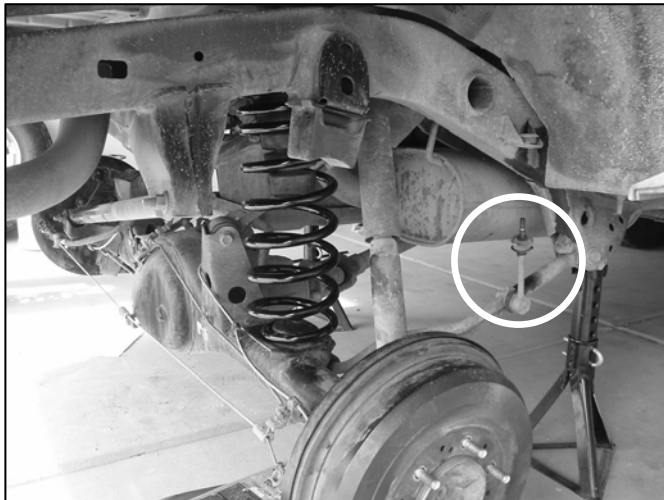
# Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 2)



6. Loosen the M8 bolt that secures the parking brake cable and install the Sonoran Steel Fabrication L.L.C. Extended Parking / Emergency Brake Cable Bracket. The supplied bolt is a metric M8X1.25 with a 13mm head. Install the bracket at an angle as shown below.



For 2001-2002 un-bolt factory cable guide and cut the metal loop off, remove it from the cable. Let the cable hang free. The bracket is not used on 2001-2002



7. In order to maximize downward travel and simplify the removal and replacement of the rear coils, undo the lower eye bolt of the rear shocks, as well as, the top nut on each side of the rear anti-sway bar anchor points. Remove the top nut, washer and cushion and set aside for now.

## Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 3)



8. If installing Lift System 1.2 or 1.2 Radflo 2.0/2.5, you will need to install the supplied Sonoran Steel Rear Sway Bar Lift Brackets. With the rear anti-sway bar hardware already disassembled from step 7, remove your factory anti-sway bar from the axle mounts. Then remove the factory rubber bushings from the U-shaped brackets.  
  
Bolt the lower end of the lift bracket to the axle using the supplied bolts and washers. The bracket goes upward and the hole that has tapped threads goes over the very center hole on the axle bracket and the second tapped hole is on the very top. Mount the U-shaped bracket onto the Rear Sway Bar Lift Bracket and then mount the entire assembly upside down with the two claws grabbing the top of the Rear Sway Bar Lift Bracket. You may need to bend the claws outward a bit.  
  
Fasten the U-shaped bracket to the Rear Sway Bar Lift Bracket with the two provided M8 bolts and washers. The lower bolt will thread into a tapped hole on the mounting bracket and the upper bolt will thread into a tapped hole as well. See photo above for a completed install.  
  
These Rear Sway Bar Lift Brackets not only re-adjust your rear sway bar for the lift, they also keep the bar from hitting the factory electronic locking rear differential cover – if your vehicle is equipped with one.



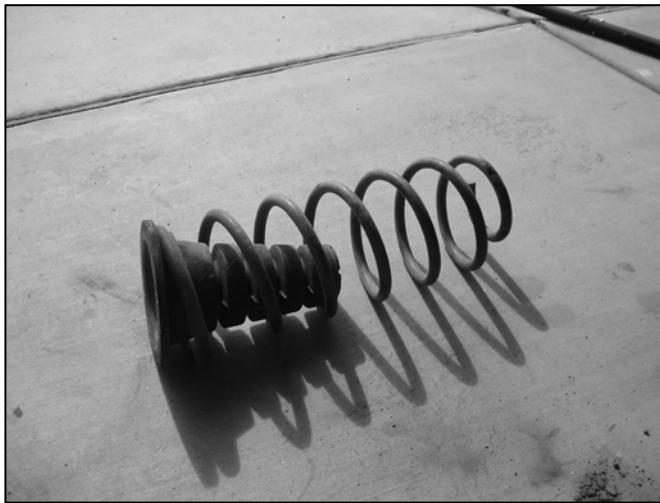
# Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 4)



9. With play in the rear end, you can now easily push down on one side of the rear axle and dislodge the rear coils. From here, you can undo the top nut on the rear shocks and remove those as well. You may find it easier to hold the metal dust boot on the shock as you work against the box wrench or deep socket you use to undo the top nut.

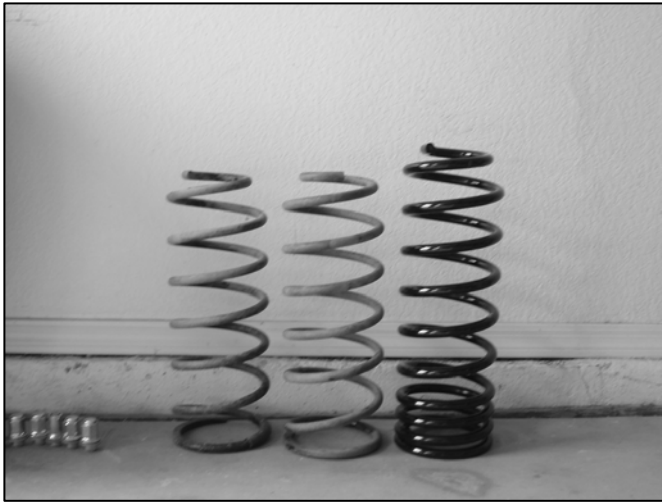


A shot of the rear coil mount under the frame



A shot of the rear coil spring with rubber cone / spring isolator.  
This was pulled from a '97 4Runner Limited 4WD

# Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 5)



A shot of 2 factory 1997 4Runner 4WD rear coils next to an Old Man Emu 890 rear coil. If you are running FZJ-80 Land Cruiser coils (Sonoran Steel Lift Systems # 1.2), yours will sit even taller.



10. Install the rear coils OME 890 for 7,2 and FZJ80 coils 1.2 kit.

The 7.2 kit has different coils side to side, "A" for driver side and "B" for passenger side. 1.2 series kits use the exact same coil on both sides.) Then mount the top of your replacement shocks into the shock mounting points on the frame. At this time, you may need to compress the rear end by jacking from the rear differential housing (pumpkin) so you can then attach your rear shock lower eye bolts and re-attach your rear anti-sway bar anchor point hardware. For 1.2 kit DO NOT re-install rear center cones. For 7.2 kit DO re-install center cones. The coil will not make noise without the cone. The bottom of the coil is already metal on metal, so don't let them tell you that. You get the rear FJ80 coils in, I put my knee on the brake drum with weight on it to get the axle to drop so you can stick it in.



While you're under there, now would be a good time to swap out the short, rubber rear brake line. You'll be running the longer, steel braided brake line from Sonoran Steel – so that you can really flex your new lift system...without breaking parts in the process.



# Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 6)

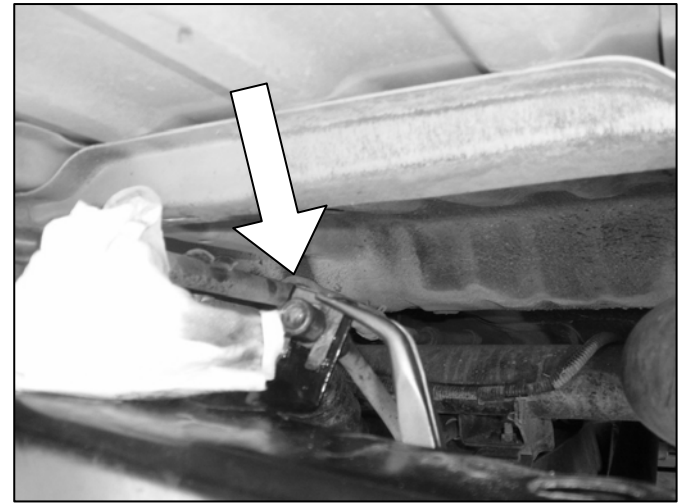


- Using a 10mm flare nut wrench (shown above), carefully undo the fitting which connects the rubber brake line to the t-junction – just above the rear differential cover (shown below at left). Then using the same wrench, tackle the upper fitting, which connects to a hard line (shown below at right). A crescent wrench is a possible alternative if your fittings are not corroded with rust, but take your time and be careful not to round off the corners!

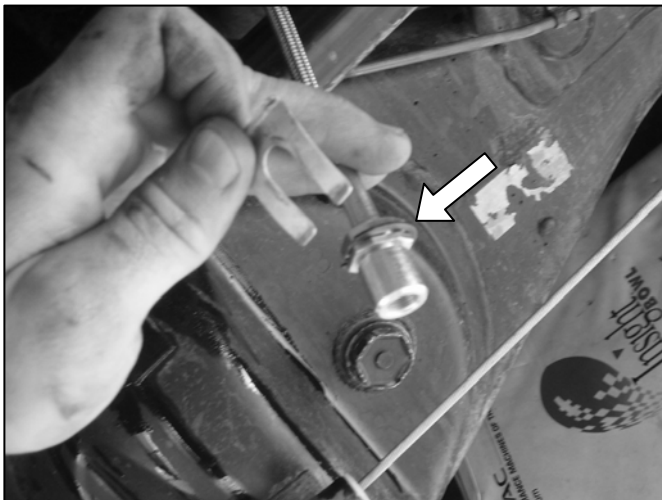


# Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 7)

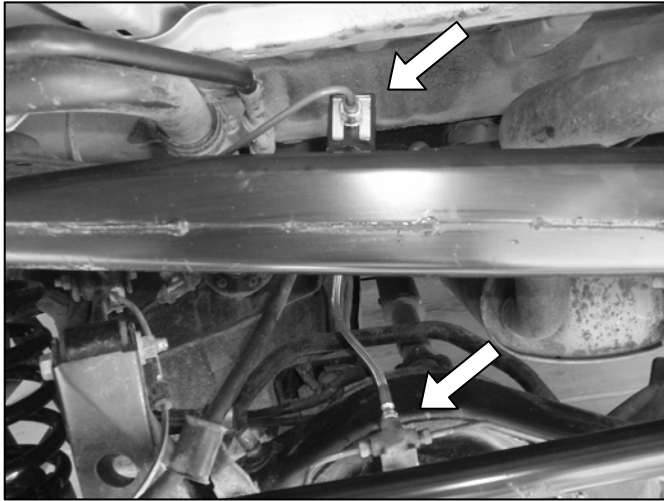
12. Cap off the upper brake hard line with a rubber cap and then wrap it in a towel or other absorbent cloth to prevent brake fluid from saturating your work area. Using pliers of your choice, grab the thin U-shaped clip off the black supporting bracket (see picture at right) and set aside. Also get the C-clip off the factory rear brake line fitting and set aside for re-use.



Thread the smaller, shorter end of the Sonoran Steel steel braided brake line into the lower fitting of the T-junction on the rear axle. Be careful not get debris into the brake lines! Then take your C-clip and attach it to the upper portion of the steel braided brake line. The C-clip (denoted with an arrow in picture below at left) sits on the first section of the neck of the fitting (so it's closest to the front of the vehicle). Then feed the large end of the brake line into the mounting bracket and use the U-shaped retaining clip to hold the line in place (see picture below at right). From there you can uncap your hard line and thread it into the opening of the Sonoran Steel line.

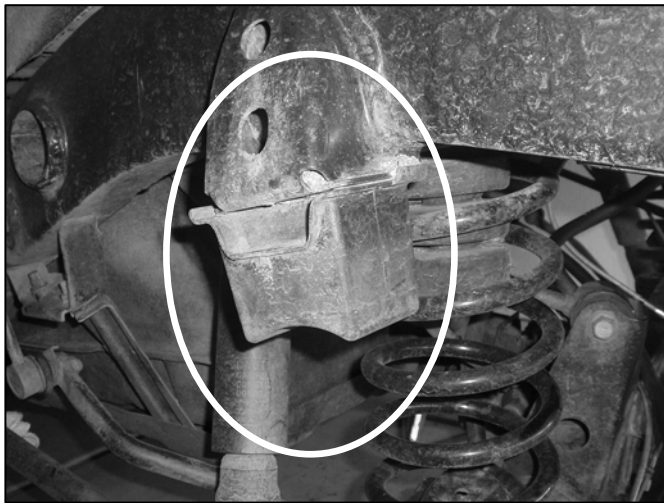


# Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 8)

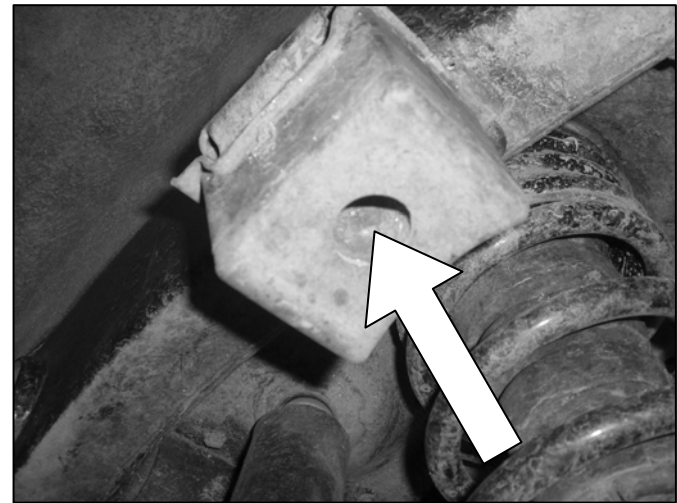


The picture at left shows the completed install of the Sonoran Steel steel braided brake line. The upper and lower connections are denoted by arrows. At this time you should complete the necessary steps to bleed your brakes and replenish any lost brake fluid. Be sure to clean off any brake fluid that seeped onto your wheels, brake drums, etc.

2001-2002 will have a second Female/Female brakeline just to the left of the center brake line, when looking at the rear axle from the rear. 2001-2002 can brake each rear wheel separately where as 1996-2000 can not.



13. Next, locate the factory rear bump stops – there is 1 per side: rear driver's side and rear passenger side



Each bump stop is secured to the frame with an M8 X 1.25 bolt with a 12mm head – accessible through this hole in the bottom of the bump stop

## Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 9)



Using a 12mm deep socket and an extension, loosen the bolt that secures the bump stop to the frame...



...and remove the bump stop and bolt.



With the factory bump stops removed, align the Sonoran Steel extended bump stops in place with the exposed hardware facing outwards. Thread the stock bolt you just removed bolt into the hole on the frame and tighten using a box wrench



# Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 10)



14. Using a 17mm deep socket and a breaker bar, loosen the bolt that secures the lower eyelet of the rear shock to the axle...



Continue by loosening and removing the top nut on the upper portion of the rear shock with a 14mm deep socket while at the same time providing resistance against the metal dust cover of the shock. Then remove the factory 4Runner shock and set aside.



For the 1.2 series kit that use Tokioc Black rear land Cruiser shock, there are 2 methods. I highly recommend using method 2. It works much better. You can run any shock after this modification, as long as you keep using the land Cruiser centering cup. For the 7.2 kits and the 1.2 kits with Bilstein 5100 rear shocks, follow method 1. Point the nipples of the universal Bilstein shocks in toward the frame hole on both sides. When mounting the rear shocks, attach the bottom first and push down with your body on the top of the shock and guide the shaft up into the mounting hole with the lower washer and bushing and centering cup if used.

# Sonoran Steel Guide to fitting Toyota Land Cruiser FZJ-80 Rear Shocks to a 1996-2002 Toyota 4Runner.

There are 2 ways to install the Genuine Toyota 48531-69417 rear shocks and the method you choose will depend on how you use your vehicle. What you can also do is install the shocks with method one and if you like the way they perform, remove them and re-install with method two now that you know they will work and you like the way they perform.

The first method is for people who primary use the vehicle on the pavement and occasionally have light off road use. With this method the shocks bolt on and there is no modification to the 4Runner in any way. This method however results in limited upper shock stud movement, which is fine for all driving conditions except for hard off road use. The 3rd retainer cup is left out of the configuration and the rubber bushings go directly on either side of the frame. See Drawing 1 for direction on how to install the rear shocks in this manner.

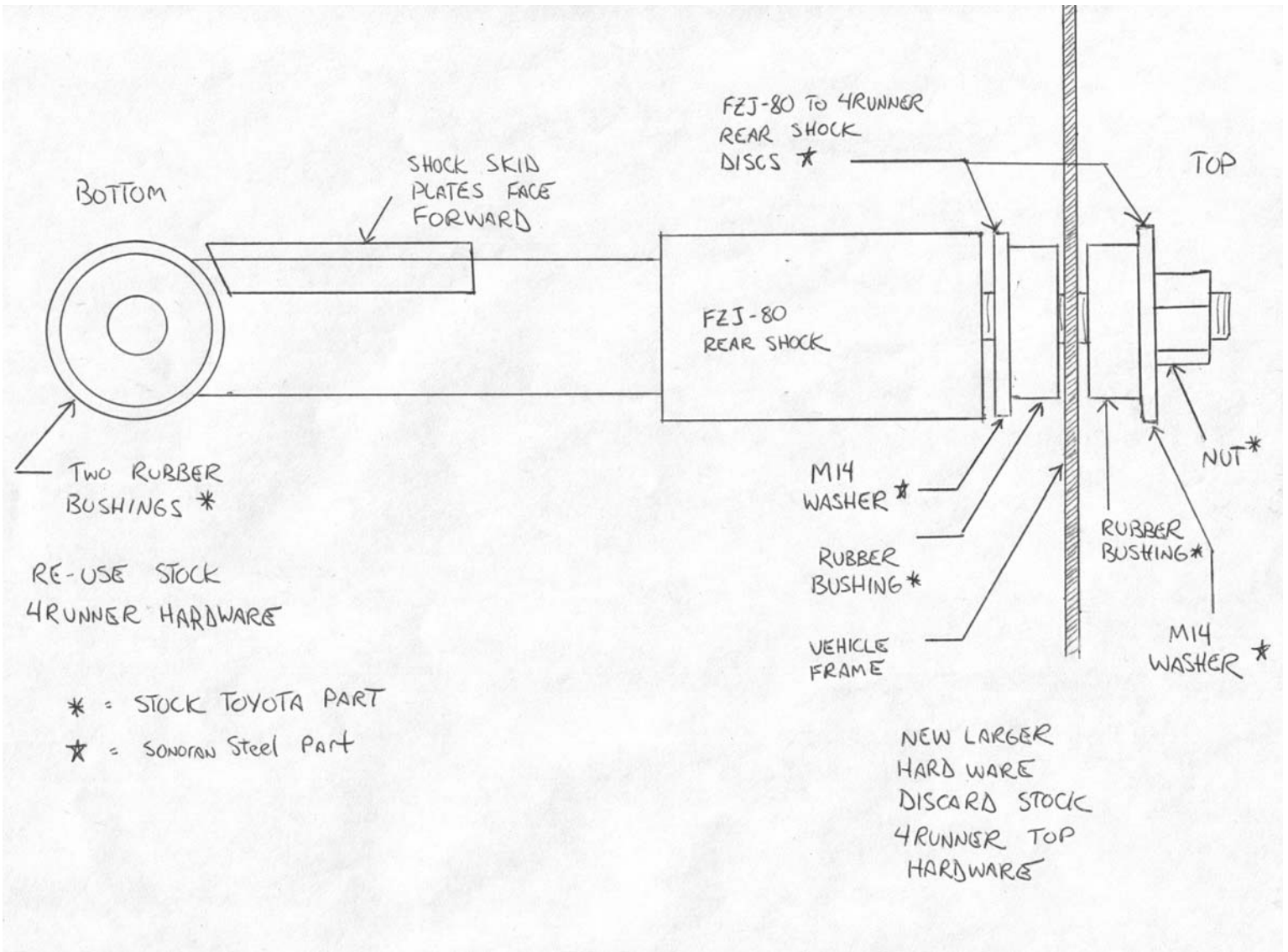
The second method modifies the 4Runner frame to exactly match the FZJ-80 Land Cruiser frame and allows maximum movement of the upper shock stud. This is a very easy modification and only requires a hand drill and a step drill bit. What must be done to modify the 4Runner mounting hole to match the FZJ-80 mounting hole is to drill the upper shock mount hole out larger from 11/16" to 15/16". That is it. Once this is done, you will install the FZJ-80 shock in the exact manner that your original 4Runner shock was originally installed. This is done using the same series of cups and centering retainers as Toyota used on the 4Runner. The difference is that all of this hardware is much larger and allows for considerable more movement and strength.



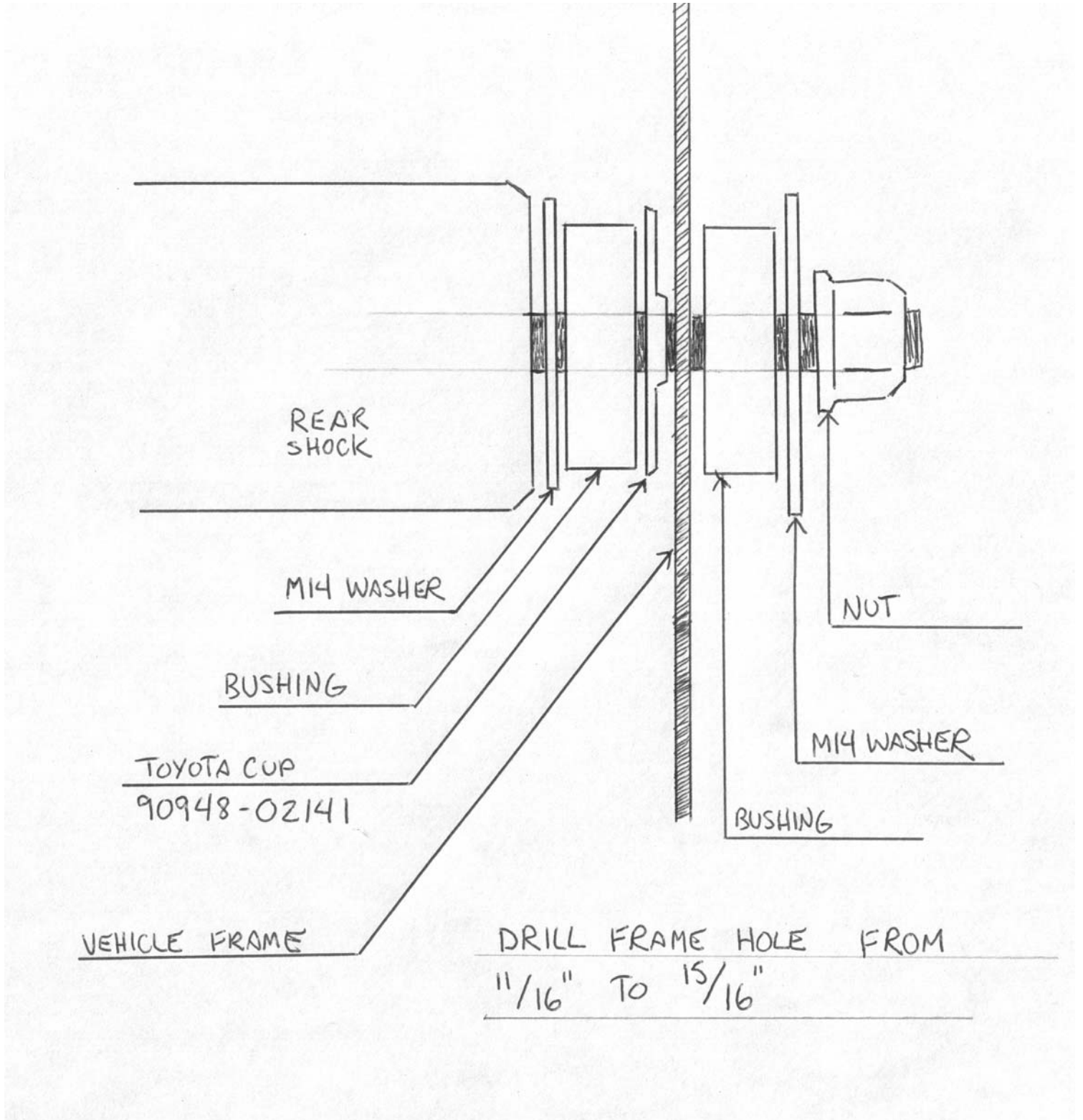
This is an example of what a step drill bit looks like, you drill until the size you want passes through and then stop. These are inexpensive and small in size to get into the area of the 4Runner you need to reach. If the bit does not list 15/16" then try 7/8" first and if that is too small use 1".



# Method One, No Drilling. Street - Light Off Road Use



# Method Two, Drill Mounting Hole Larger - Hard Off Road Use





## Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 11)



When mounting the FZJ-80 rear shock, the shock body skid plate will face forward to intercept rocks. Re-tighten with your 17mm socket and breaker bar to factory specs.

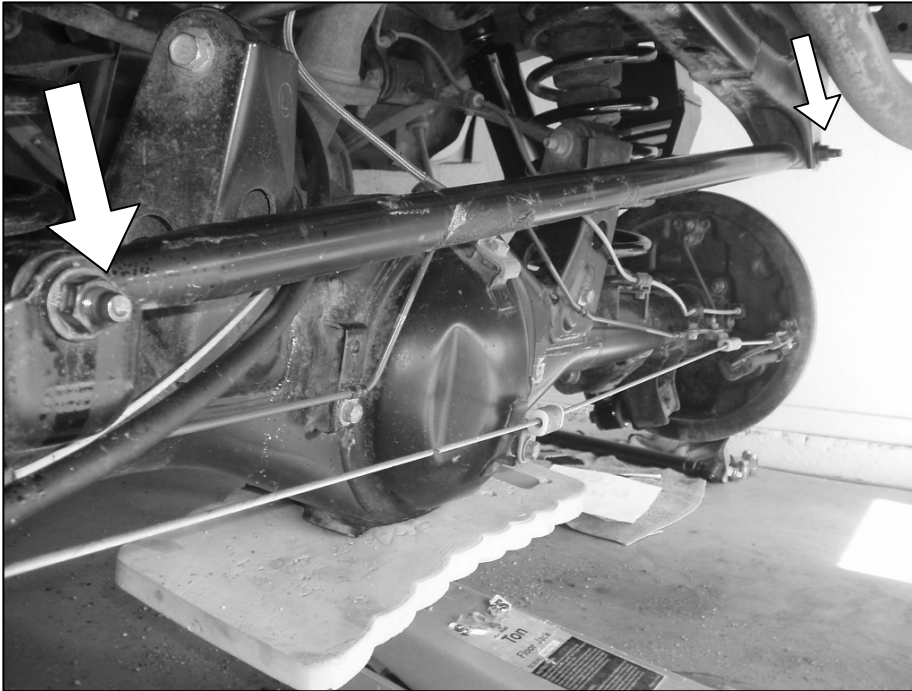


Up top, you will tighten the FZJ-80 top nut down with a 17mm socket or similar. Just like you did when removing the 4Runner shocks, you will need to provide resistance to the upper metal dust cover on the FZJ-80 shock to prevent it from spinning on you. A secure hand grip should provide enough leverage to tighten against. To get the nut started, jack up the axle on the side you are working on to pre-load the lower bushing so you can get the nut started. Tighten it until it stops.



The picture to the left shows a completed install. If you are installing the Bilstein 5100 Rear Shocks, Only screw the top lock nut down so one or two threads show past the nylock area. The bushings Bilstein supplies are not as soft as stock and they need to move side to side. If you crank the nut down, the shock will not be able to move and the top stud will break off. The Tokico above has a stop for the nut, the Bilstein does not.

## Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 12)

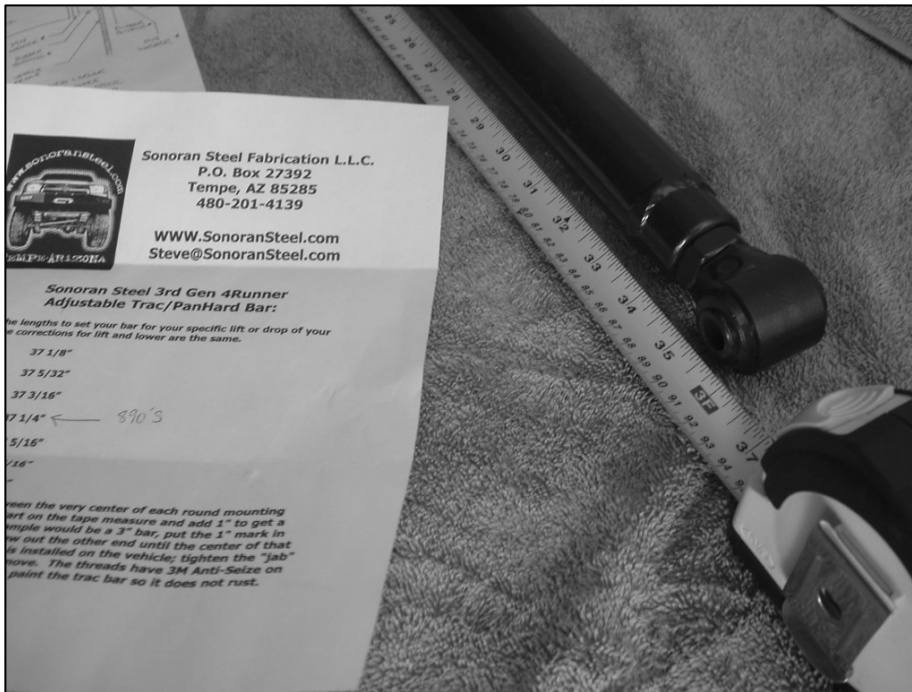


15. You will now be removing the factory Trac / Panhard bar. Using a 17mm deep socket and a breaker bar, remove the 2 anchor bolts that secure the bar to the axle and frame as shown at left. It is recommended that you try jacking the rear axle up slightly to ensure the bolts slip right out. You should not pound them out – just fiddle with your floor jack to finesse the bolts out – you'll do the same when you go to put the Sonoran Steel adjustable Trac / Panhard bar on. Take your time!

The picture at right shows the factory Trac / Panhard bar with corresponding hardware. A shot of PB Blaster makes it easier to reassemble the hardware later on.



# Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 13)



As the supplemental instructions explain, take the time to get accurate measurements when adjusting the Sonoran Steel adjustable Trac / Panhard bar. This ensures the alignment of the rear axle within the wheel wells so that the vehicle will track straight.



In this case, we were compensating for Old Man Emu 890 coils in the rear. Starting with the 1" mark on our tape measure for accuracy, we adjusted the ends of the Sonoran Steel Trac / Panhard bar until we were exactly where we needed to be: 37 1/4" (after subtracting the additional inch as our baseline).

# Sonoran Steel Adjustable Trac/PanHard/Lateral Bar

## Install Guide, January 2017

**Assembly:** Remove the 4 red Strongflex poly bushings from the plastic bag. Remove packet of Smear Grease from the plastic bag. Coat the inside of the Strongflex bushings with the smear grease. The inside has X shaped cross hatching so the grease is captured and does not come out. Do not coat the outer side of the bushing that fits against the circular tube on the end of the bar. If you do, the bushing may pivot on the outer surface of the bushing and not the center area with the cross hatching. Insert the bushings into the bar ends, they will be loose until the center sleeve is inserted and then will become tight. Coat the center sleeve with a very light coat of the smear grease and push the sleeve into the bushings with a vise or similar item. Repeat for the other side.

Unscrew the adjustable end of the bar. Thread on  $\frac{3}{4}$ " Jab Nut and coat the threads of the screw end with the AGS Thread-Magic Anti-Seize. The anti-seize will keep the threads moving years to come. The jab nut will tighten against the tube insert in the end of the main tube to prevent the adjustable end from moving.

**Setting Length:** The length of the bar will be determined by your lift height. The length of the bar has no bearing what so ever with the phenomenon of the drive shaft hitting the gas tank. That issue is solely caused by rear shocks that are too long in the extended position. Adjusting the bar will have no effect on that occurrence. The kits we sell have the correct length rear shocks. So to set the bar for your lift height it is done with a tape measure and a distance between the center of the eye to center of the eye on each end. The distances are as follows:

1" Rear Lift: 37  $\frac{5}{32}$ "

2" Rear Lift: 37  $\frac{3}{16}$ "

3" Rear Lift: 37  $\frac{1}{4}$ " (Old Man Emu 890)

4" Rear Lift: 37  $\frac{5}{16}$ " (Toyota 48131-6A570)

5" Rear Lift: 37  $\frac{7}{16}$ "

6" Rear Lift: 37  $\frac{5}{8}$ "

This is measured from between the very center of each round mounting point. Use the 1" mark to start on the tape measure and add 1" to get a more accurate length. An example would be a 4" bar, put the 1" mark in the center of one hole and screw the adjustable end out until the center of both holes are at 38  $\frac{5}{16}$ ".

**Installation:** Grease with the smear grease the outside surfaces of the Strongflex bushings that will slide into the Toyota frame and axle brackets. Install the axle side first and use the end that does not move on that end. The axle bolt on a 3<sup>rd</sup> Gen 4Runner should be inserted from the coil side and nut on the bumper side. This will allow the axle bracket to clamp tighter on the sleeve. Torque to 62 foot pounds. Slide the frame side up into the frame mount and insert the bolt in the same orientation with the head facing the front of the truck and the nut facing the rear. Interesting fact about these bolts is that the heads have “feet” on them that dig into the metal of the mounting brackets. Always loosen and tighten the nut/washer side and never try to spin the head side. If the bar is a hair too long lay on your back and push up with your feet lifting the back of the 4Runner a bit, this will move that center sleeve directly in line with the mounting hole and you can easily slide the bolt in. The center tubes were made in Europe so they are actually metric sized tube. They will fit the bolts the same as the factory bar. The bolts should never be beaten in! Tighten the ¾” Jab Nut with a 1 1/8” wrench tight against the tube insert on the main center bar.

**Install Tip:** Install the bar with the truck on the ground with the tires on. This is by far the easiest way. Trying to install the bar with the rear end jacked up or in the air is quite difficult as it will take extreme force to shift the axle one way or the other. When the truck is on the ground with all 4 tires on, it will come pretty close to self-centering, then only slightly raising or lowering the rear will line frame side up, as the axle side is installed first and install will be complete.

**Torque to 62 foot pounds**, both bolts. Re-Use the Factory M12x1.25 bolts, nuts and washers.

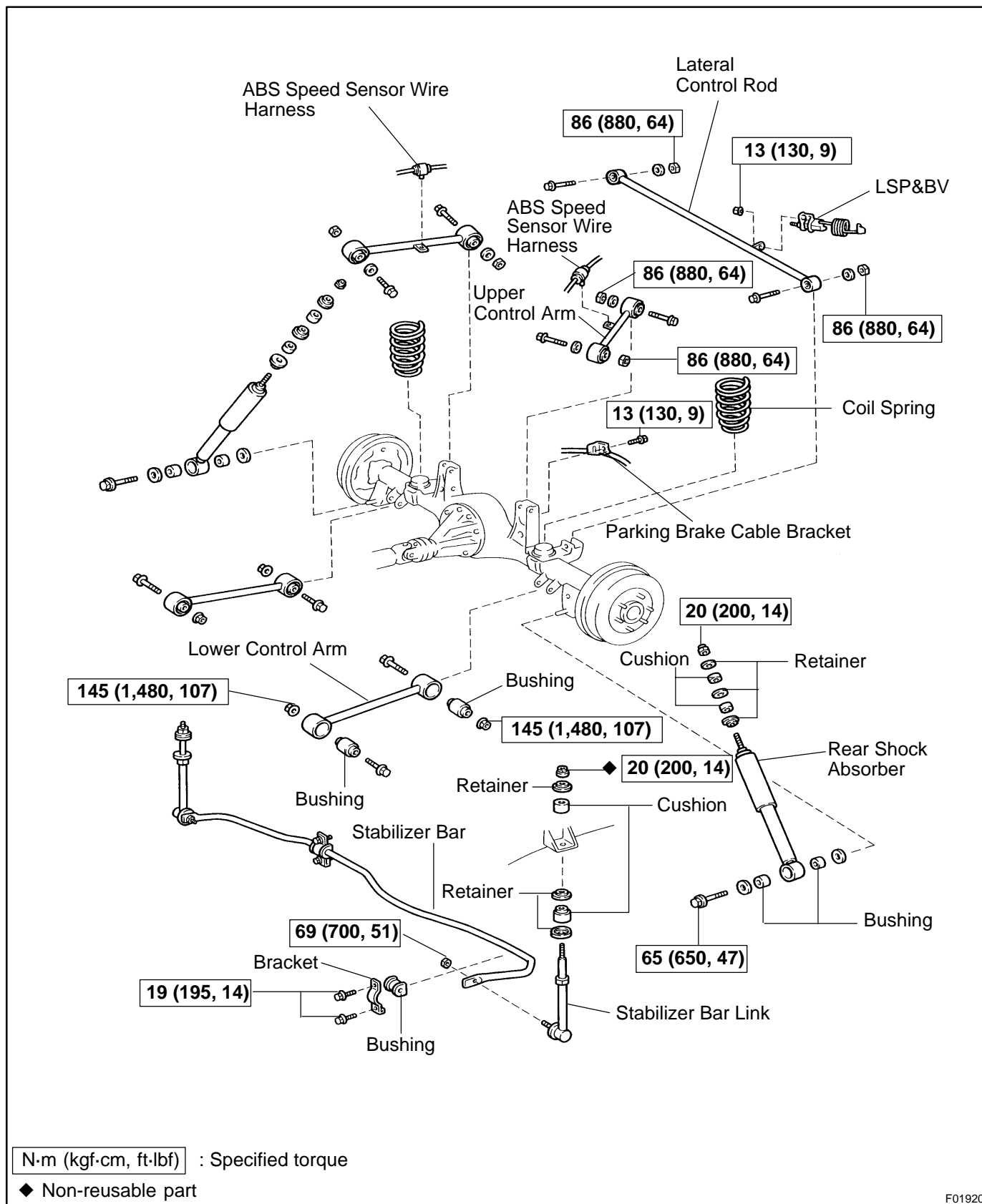
Do not use the adjustable bar with a drop bracket or an axle tube raise bracket. You will increase the roll center of the vehicle. If the truck has a drop bracket use the top factory hole and cut everything below the stock bracket off with a sawzall.

Replacement bushings are available if they ever should be needed. The bars made prior to Jan 2017 have 2 adjustable ends and use an entirely different bushing system. Those bushings are available as well.



# REAR UPPER AND LOWER CONTROL ARM COMPONENTS

SA06Y-01



F01920

## Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 14)



The picture at left shows the rear axle assembly with the factory 4Runner Trac / Panhard bar removed. The bars with the LSPV brackets, the bracket is facing downward on the stock bar, but on the bars for the lifted trucks with LSPV the bracket faces upward. Re-connect the lever to the hole on the top of the bracket. Only 4Runners from 1996-2000 with a 2.7 4 Cylinder engine would have LSPV. The rest have ABS.

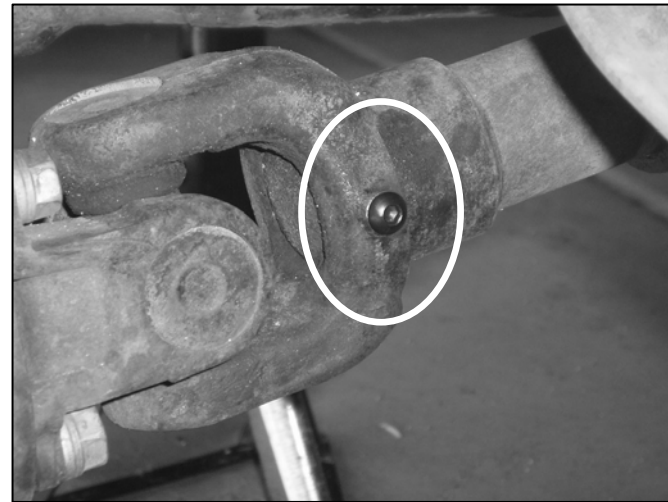
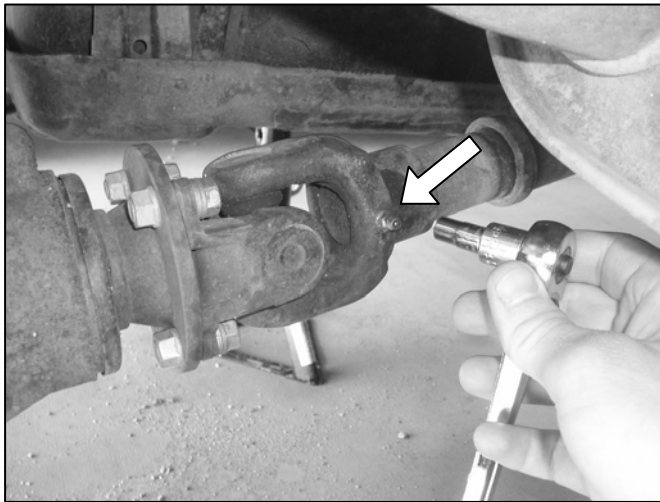
The picture at right shows the Sonoran Steel adjustable Trac / Panhard bar now sitting in place. Installation is the reverse of removal.



## Sonoran Steel Fabrication L.L.C. ▪ Rear Suspension Install (page 15)



Finish off the adjustable Trac / Panhard bar install by tightening the jab nut. On the frame side. Photo shows the older style bar with 2 adjustable ends.



16. Using a 7mm socket, undo the factory Zirc fitting on the rear drive shaft and replace it with the supplied Sonoran Steel allen-head bolt.

# Sonoran Steel Fabrication L.L.C. • Rear Suspension Install (page 16)



You're now done installing your Sonoran Steel Lift System and you can reinstall your wheels and tighten your lug nuts to factory specs. Clear all tools and jack stands out of the way and then carefully lower the rear of your vehicle using the floor jack that you situated under the rear differential.



Enjoy your newfound ride height and off-road capability. Always Tread Lightly and thank you for choosing Sonoran Steel as your provider of Specialized Suspension and Off-Road Parts for TOYOTA 4Runners, Trucks, Tundras, and Tacomas

-Steve Schaefer



## Rear Coil Notes:

**System 1.2:** DO NOT Re-Install the large rubber isolator/bumpstop cones in the center of the FZJ-80 coils. The springs were installed in the FZJ-80 this way, without cones.

**System 7.2:** Installer/Customers choice. First off you DO want to re-install the large rubber isolator/bumpstop cones in the center of the Old Man Emu 890 coils. If you want a very level lift, leave the Yellow Old Man Emu 10mm trim packer out of the assembly. If you want just a bit higher rear, approximately 1/2" more, install the Old Man Emu trim packer part number: OME80PF10



Old Man Emu 890 Coil with 10mm Trim Packer and Cone installed.

### Install part in this order:

- 1: Very Top: Toyota Center Cone/Bumpstop
- 2: Middle: Old Man Emu 10mm Trim Packer
- 3: Bottom: Old Man Emu 890 Coil

When placing this "sandwich" of parts in the vehicle make sure when seating these parts that they are all lined up and centered.

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## Radflo Rear 2.5 Reservoir Shock Install and Tips:

The shock is installed in the same manner as the Tokioc and Bilstein. The big difference is that it is much more difficult to compress. It also has a lower heim mount so mounting the top first and then the lower mount is possible, that is not possible with the rubber mounts.

Test the spacers that go on either side of the lower shock heim on the mounting studs, if they do not move easily, clean the studs with a razor blade, round wire brush on grinder, round wire brush in drill or sand paper. Do not beat on the heims. You can use an M12 x 1.25 bolt to press them on with washers and small pieces of tube but do not hit anything with a hammer! They will fit snug as you do not want any movement as it would result in noise.

Once the shock is mounted, route the hose behind the bump stop and in front of the coil spring. Basically, between the two. Then mount the reservoir to the outside or inside of the frame rails with the supplied universal bracket from Radflo. Example of this on a 5<sup>th</sup> gen 4Runner is below this specific truck has compression adjusters. Same shock.





## Tires and Wheels

Here are the tires and wheels you can run with a Sonoran Steel 1.2 or 7.2 Lift kits. The 1.2 kit will allow more room in the rear. The front clearance is the same on both kits.

Rubbing will occur in the lower rear of the front fenders, you can trim out the lower rear section of the plastic fender liner and pound flat the pinch weld behind it. In the rear larger tires may rub on the rear bumper/rear mud flaps when the rear tires stuff up and tuck in.

Sizes:

265/75/16 = 32" Tire, can be run on stock wheels

255/75/17 = 32" Tire, These are Jeep Rubicon take offs and can be run on stock 1<sup>st</sup> Gen Tundra 17" rims.

255/85/16 = 33" Tire, can be run on stock wheels

285/75/16 = 33" Tire, MUST be run on a 16"x8" rim with 4.5" Back Spacing, Stock 1993-1997 Land Cruiser FJZ80 Rims work too.

285/70/17 = 33" Tire, MUST be run on a 17"x9" rim with 4.5" Back Spacing

315/75/16 = 35" Tire, Requires a 1" or 1.5" body lift in addition to the 1.2 kit. Requires a 16"x8" rim with around 3.5" Back spacing. Cutting metal on the body is mandatory. Re-gearing the diffs is mandatory.

I recommend trying to find a tire with a "D" rating. "E" load range tires can ride very hard on the road. For a 3<sup>rd</sup> gen 4Runner a "D" rating is perfect.

Wheels:

The stock rims are 16"x7" with 4.5" backspacing. The 16"x8" rim with the same 4.5" backspacing will stick out 1" further than a stock rim. This is because the extra 1" is all on the outside of the wheel. Which allows the wider 11.5" tires like the 285 to clear the stock upper a-arms at full droop.

Wider is not always better. A customer once brought me 285/75/16 tires on 16"x8" rims with 4" back spacing. This moved the outside of the tire out effectively 1.5" This was too much back spacing requiring me to cut the metal body of his truck to clear them. In fact I had to cut just as much metal as I would have to fit a 315. This was because he had too much backspacing on the rim. More is not better, it is a very small window to keep the tire in the tunnel the Toyota engineers craved out in the vehicle. If you move out past it, you're cutting painted sheet metal. Follow the recommendations above.

Wheel spacers are not the answer. If you put a 1.25" hub centric Spider Trax wheel spacer on a stock 16"x7" rim with 4.5" back spacing you now have a rim with essentially 3.25" back spacing. Remember the story above with the guy that was 1/2" off, now you're the 1" further out to equal an 8" rim plus 1/4" more. So a stock rim with a 1.25" spacer sticks out the same as a 16"x8" rim with 4.25" backspacing, you will incur more rubbing than running the native 16"x8", 4.5" BS rim. Also some tire chains will not mount tires on vehicle with spacers and some chains will not mount a 285 on a 7" rim.

Finally 17" tires/wheels are fine, but they cost more than the same size tire in a 16" size. You cannot run 15" rims on most 3<sup>rd</sup> Gen 4Runners. Only the base model (96-00, 4Cylinder) that did not have the 265 upgrade and a very few stripped SR5's (96-02) had small 235/75/15 tires.

Stock rims from other Toyota vehicles.

As long as you stay in the same family, this is fine.

1<sup>st</sup> Gen Coil Suspension Family, 4.5" Back Spaced wheels

1995.5-2004 Tacoma

1996-2002 4Runner

1999-2006 Tundra

1993-1997 Land Cruiser FZJ80

2<sup>nd</sup> Gen Coil Suspension, 5" Back Spaced wheels

2003-Current 4Runner

2005- Current Tacoma

2007-2014 FJ Cruiser

These wheels will be in too far for the older coil over suspension. Spacers are typically used, but see issues with spacers above.

2007+ Tundra and 1998+ Land Cruiser are 5 Lug.